

# Parameterized fielded term dependence models for ad-hoc entity retrieval from knowledge graph

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## Abstract

© 2016 ACM. Accurate projection of terms in free-text queries onto structured entity representations is one of the fundamental problems in entity retrieval from knowledge graph. In this paper, we demonstrate that existing retrieval models for ad-hoc structured and unstructured document retrieval fall short of addressing this problem, due to their rigid assumptions. According to these assumptions, either all query concepts of the same type (unigrams and bigrams) are projected onto the fields of entity representations with identical weights or such projection is determined based only on one simple statistic, which makes it sensitive to data sparsity. To address this issue, we propose the Parametrized Fielded Sequential Dependence Model (PFSDM) and the Parametrized Fielded Full Dependence Model (PFFDM), two novel models for entity retrieval from knowledge graphs, which infer the user's intent behind each individual query concept by dynamically estimating its projection onto the fields of structured entity representations based on a small number of statistical and linguistic features. Experimental results obtained on several publicly available benchmarks indicate that PFSDM and PFFDM consistently outperform state-of-the-art retrieval models for the task of entity retrieval from knowledge graph.

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## Keywords

Entity retrieval, Feature-based models, Knowledge graph, Learning-to-rank models, Structured document retrieval